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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/872,848	06/01/2001	Inyup Kang	000303	3695
23696	7590	01/21/2005	EXAMINER	
Qualcomm Incorporated Patents Department 5775 Morehouse Drive San Diego, CA 92121-1714			KIM, KEVIN	
			ART UNIT	PAPER NUMBER
			2634	

DATE MAILED: 01/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/872,848

Applicant(s)

KANG ET AL.

Examiner

Kevin Y Kim

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-15 is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☒ Claim(s) 8-10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/24/2002</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, line 5, "a first string" should be changed to "the first string" since it apparently refers back to "a first string" on line 3, to avoid confusion.

In claim 3, "the correlation result" should be changed to "the first correlation result" since base claim 1 recites "a first correlation result" and "a second correlation result" and the language in question apparently refers back to the "a first correlation result," to avoid confusion.

Claims 2,4 and 5 are rejected for the same reason as dependent on rejected a base claim.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the

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various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1,2,6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over by King et al. (US 6,804,290) in view of the admitted prior art (Fig.2 of the present application).

Claim 1.

King et al disclose a method of searching a predetermined sequence, comprising,

- 1) "calculating a first correlation based on at least a first substring of the first string of samples," see col. 5, lines 38-52 and note that the language "at least a first substring of the first string" encompassed a case where all of the first string are used;
- 2) "calculating a second correlation based on at least a first substring of the second string of samples," see col. 5, lines 38-52, see col. 6, lines 25-30, and note that the language "at least a first substring of the second string" encompassed a case where all of the second string are used; and
- 3) "accumulating a non-coherent sum based [on] the first correlation result and the second correlation result." See the non-coherent integrator 138 of Fig.1,

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which comprises an adder (202) and a memory (206), see Fig. 2, for accumulating the correlation results. See col. 6, lines 33-44.

But King et al fails to teach “a shift register” that receives strings of samples of a receives signal according to a clock signal, and disabling and enabling of the clock signal such that the correlation results could be obtained based on the strings in the shift register. And yet, a shift register is an essential element of a commonly correlator for correlating a received signal with a predetermined sequence, as shown and described by Applicant at page 3 and Fig. 2 of the present application, respectively. Thus, it would have been obvious to one skill in the art at the time the invention was made to use a shift register as the correlator (132) in King et al’s searcher for the purpose of calculating the correlation between a segment of the received samples and a predetermined PN sequence. In addition, though not described, it can be inferred that the clock signal to the shift register must be disabled to latch a segment of samples that have been shifted to allow a correlation operation with the PN sequence and after the correlation operation, the clock signal to the shift register must be enabled again to receive the next segment of received samples. In other words, “a search clock” clocking the shift register of the correlator must be “configured and arranged to enable and disable a clock signal” to the shift register.

Claim 2.

King et al disclose that the first correlation result is based on “at least in part on a relation between a first portion of a code vector and at least the first

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substring” since King et al calculates the first correlation result based on the first segment and a corresponding first portion of the PN sequence, i.e., “a code vector.” Likewise, the second correlation is based on a relation between the second segment and a corresponding second portion of the PN sequence. See col.6, lines 25-30.

Claim 6.

King et al disclose a PN sequence searcher, comprising,

- 1) a correlator (132) that receives strings of received signal samples, and
 - 2) a non-coherent accumulator (138, shown in details in of Fig. 12), which comprises an adder (202) and a memory (206) for outputting a sum based on “a first sample vector,” i.e., a first segment of received samples, and “a second sample vector,” i.e., a second segment of received samples. See col. 6, lines 33-44.
- King et al fails to describe “a searcher clock configured and arranged to enable and disable a clock signal” and a “a shift register --- to output different sample vectors at successive transitions of the clock signal.” Regarding the shift register, although King et al is silent on the structure of the correlator, a shift register is an essential part of a commonly used correlator, as admitted and described by Applicant at page 3 and Fig. 2 respectively in Background of the Invention. It shifts received samples according to a clock signal. Thus, it would have been obvious to one skilled in the art at the time the invention was made to implement the correlator (132) in King et al’s searcher by using “a shift register” for the purpose of calculating the correlation between a segment of the received

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samples and a predetermined PN sequence. Furthermore, it can be inferred that the clock signal to the shift register, i.e., “a search clock,” must be disabled to latch a segment of samples in the shift register that have been shifted to allow a correlation operation with the PN sequence and, after the correlation operation, the clock signal to the shift register must be enabled again to receive the next segment of received samples. In other words, “a search clock” clocking the shift register of the correlator must be “configured and arranged to enable and disable a clock signal” to the shift register.

Claim 7.

The correlator (132) of King et al that includes a shift register, as explained above, would comprise “an integrator” (34), see Fig.2 of the present application, to produce a first correlation result the based on the first segment, i.e., “the first sample vector,” and a corresponding first portion of the PN sequence, i.e., “a code vector.” Likewise, the second correlation result is based on a relation between the second segment, i.e., “the second sample vector,” and a corresponding second portion of the PN sequence. See col.6, lines 25-30. The “non-coherent accumulator” outputs a sum based on the first and second correlation results. In other words, it adds the two correlation results. See col. 6, lines 33-44.

Allowable Subject Matter

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6. Claims 3-5 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

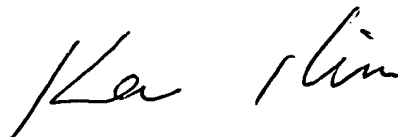
6. Claims 8-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Claims 11-15 are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Y Kim whose telephone number is 571-272-3039. The examiner can normally be reached on 8:30AM --5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



KEVIN Y KIM
PATENT EXAMINER